

**REMARKS**

**Summary of the Office Action**

In the Office Action, the drawings and specification stand objected to.

Claims 1-4 stand rejected under 35 U.S.C. § 112, 2<sup>nd</sup> Paragraph.

Claims 1-4 stand rejected under 35 U.S.C. § 103 (a), as being unpatentable over U.S. Patent No. 5,785,133 to *Murray* in view of U.S. Patent No. 5,425,419 to *Sieber*.

**Summary of the Response to the Office Action**

Applicant proposes amending claim 1, and substituting Fig. 7 as shown in the concurrently filed Request for Approval of Drawing Changes. Accordingly, claims 1-4 are pending for further consideration.

**Objection to the Drawings and Specification**

In the Office Action, the drawings and specification stand objected to.

As required in the Office Action, Fig. 7 has been amended to disclose the shear screw T. As evidenced by the enclosed Figure 7 from priority application PCT/GB00/03574, which illustrates the shear screw T, Applicant respectfully asserts that no new matter has been added by the current amendment to Fig. 7.

Additionally, as required in the Office Action, the specification has been amended to label the specific sections as shown above.

Accordingly, Applicant respectfully requests withdrawal of the objection to the drawings and specification.

**Rejection under 35 U.S.C. 112, 2<sup>nd</sup> Paragraph**

Claim 1-4 stands rejected under 35 U.S.C. 112, 2<sup>nd</sup> Paragraph.

Applicant proposes amending claim 1 and the drawings, as shown above, to address the concerns raised in the Office Action. These amendments have been made solely for the purpose of correcting typographical errors and other informalities, and not for purposes related to patentability.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. 112, 2<sup>nd</sup> Paragraph, rejection of claim 1-4.

**All Claims are Allowable**

In the Office Action, claims 1-4 stand rejected under 35 U.S.C. § 103 (a), as being unpatentable over U.S. Patent No. 5,785,133 to *Murray* in view of U.S. Patent No. 5,425,419 to *Sieber*. Applicant traverses this rejection for the following reasons.

**Independent claim 1**

With regard to independent claim 1, Applicant respectfully asserts that *Murray* and *Sieber*, whether viewed singly or in combination, do not teach or suggest a downhole system for locating and fixing equipment at required depth and orientation within a wellbore, including at least, "a portion of well bore casing having an inner surface in which a latch profile is defined; and downhole apparatus comprising a latch sub for locating equipment secured thereto at a required depth and orientation, and an anchor packer secured to said latch sub for releasably fixing the depth and orientation of said latch sub relative to a well bore, the latch sub comprising a body and a latching member mounted on said body so as to be movable between a retracted position and an extended position, the latching member projecting a greater radial distance from said body when in the extended position than when in the retracted position, wherein the latching member is adapted to project into said latch profile provided in said portion of well bore casing when in the extended position during use and wherein a first portion of said latch profile is adapted to be engaged by the latching member in such a way that, when pressed against said profile portion, the latching member tends to slide along a well bore casing edge defining said profile portion so as to locate the latching member in abutment with a second profile portion and thereby prevent further movement of the latch sub in the direction of pressing, the latching member being further adapted to engage a third portion of said profile in such a way that, when pressed against said third profile portion, the latching member is moved towards the retracted position so as to permit movement of the downhole apparatus past said latch profile," as recited in independent claim 1, as amended.

Support for these features recited in claim 1 can be found at least on pages 1-11 of the originally filed specification, and in Figs. 1-22 of the originally filed drawings. Specifically, as shown in Figs. 1-10, the present invention provides a downhole system for locating and fixing equipment at required depth and orientation within a wellbore. The system includes a portion of well bore casing 6 having an inner surface in which a latch profile 5 is defined. The system further includes a latch sub for locating equipment secured thereto at a required depth and orientation, and an anchor packer secured to the latch sub for releasably fixing the depth and orientation of the latch sub relative to a well bore. As shown in Figs. 2-4, the latch sub includes a body and a latching member 3 mounted on the body so as to be movable between a retracted position and an extended position. Latching member 3 projects a greater radial distance from the body when in the extended position than when in the retracted position, and is adapted to project into latch profile 5 provided in the portion of well bore casing 6 when in the extended position during use. A first portion of latch profile 5 is adapted to be engaged by latching member 3 in such a way that, when pressed against the profile portion, latching member 3 tends to slide along a well bore casing edge defining profile portion so as to locate latching member 3 in abutment with a second profile portion and thereby prevent further movement of the latch sub in the direction of pressing. Latching member 3 is further adapted to engage a third portion of the profile in such a way that, when pressed against the third profile portion, latching member 3 is moved towards the retracted position so as to permit movement of the downhole apparatus past the latch profile.

*Murray*, as illustrated in Figs. 11-14, discloses an assembly for drilling multiple laterals from a borehole, the assembly including locator tool 80 having locator lug 82 (i.e. latch member). *Sieber* discloses a whipstock including anchor packer 14M.

Contrary to the teachings of *Murray* and *Sieber* and the assertions in the Office Action, Applicant respectfully asserts that it would not be obvious to one of ordinary skill in the art to provide the system disclosed by *Murray* with “an anchor packer secured to said latch sub for releasably fixing the depth and orientation of said latch sub relative to a well bore,” as recited in independent claim 1, as amended, since the *Murray* latch sub is itself used for this purpose. Specifically, as discussed in Figs. 13 and 14 of *Murray*, latch member 82 (including two discrete elements 138, 140) is located in a short locator slot 132 (i.e. latch profile as referred to in

independent claim 1) and thereby fixes the depth and orientation of equipment relative to the wellbore, (see also Col. 1:31-54). Accordingly, latch member 82 for *Murray* not only orientates equipment, but also secures equipment relative to a wellbore. There however is no suggestion or motivation in *Murray* to use additional equipment, i.e. an anchor packer, to assist latch member 82 in securing equipment, such as a whipstock. Thus one of ordinary skill in the art would conclude from the teachings of *Murray* that latch member 82 is alone sufficient to secure a whipstock and allow subsequent drilling of a lateral borehole.

With regard to the teachings of *Sieber*, even though *Sieber* discloses an anchor packer 14M, one of ordinary skill in the art would not combine the teachings of *Murray* and *Sieber* to provide a latch member in combination with an anchor packer, as recited in independent claim 1 for the present invention. Specifically, since *Murray* already discloses a latch member 82 for securing equipment, providing an anchor packer in combination with latch member 82 of *Murray* would be redundant and unnecessary both from a technical as well as an economical basis. Thus Applicant respectfully asserts that providing “an anchor packer secured to said latch sub for releasably fixing the depth and orientation of said latch sub relative to a well bore,” as recited in independent claim 1, as amended, would not be obvious to one of ordinary skill in the art in view of the teachings of *Murray* and *Sieber*.

The aforementioned distinctions are further exemplified by the research conducted herein, by which Applicant has determined that conventional systems, such as the one disclosed by *Murray*, suffer from several deficiencies in the use of a latch member for fixing the depth and orientation of equipment relative to the wellbore. For example, a primary function of a latch system is to orient equipment, and for this primary reason, such systems are of particular use with a whipstock for drilling lateral bores. In this regard, it is understood that a whipstock must be located at a specific depth and orientation, and then secured in position prior to drilling of the lateral borehole. Moreover, during drilling of the lateral borehole, the whipstock is subjected to relatively high loads acting in a downhole direction. A latch sub is both able to position a whipstock and secure the whipstock in such a way as to resist the high downhole loads associated with a lateral drilling operation. However, a latch sub is designed so as to be readily pulled uphole with relatively low loads, i.e. 5000 – 1000 lbs. This is achieved by means of camming surfaces on the latch member and the inter-engaging portion of the casing slot in which

the latch member locates. This arrangement allows the latching sub to be conveniently pulled from a slot and either tripped uphole or located in a second casing slot. By way of illustration of this process, Applicant respectfully draws the Examiner's attention to the discussion in columns 11 and 12 of *Murray*.

Through research and analysis performed herein, Applicant has determined that although applying a downward acting force to a latch sub during the drilling of a lateral borehole is generally not hazardous, a problem apparently not previously recognized is that, on periodical pulling of a drill string uphole during the drilling process, the drill string can tend to snag on the whipstock and the whipstock is thus subjected to an uphole snatching load. This load acting in an uphole direction can potentially exceed the 5000 – 1000 lbs load required to release the latch sub from the latch profile, thus resulting in extremely severe consequences. One such consequence is that the latch sub becomes released from the latch profile, in which case the whipstock and the latch sub will be dropped and lost downhole in the primary borehole. Thus, the use of the primary borehole may be lost. Another such consequence is that the drill string may become severed, resulting in the loss of part of the drill string in the lateral borehole. In this case, use of the lateral borehole may be lost. Although these occurrences can be rectified, typical solutions are extremely costly and time consuming.

Therefore, through extensive research and analysis, Applicant has realized the aforementioned problems with existing latch systems, such as the system disclosed by *Murray*, and has provided a solution which will not only benefit the oil drilling industry, but is non-obvious to one of ordinary skill in the art for the reasons discussed above.

In realizing the aforementioned problems with existing latch systems and inventing the downhole system disclosed for the present invention, Applicant has provided a system with several benefits over the prior art drilling systems. For example, in addition to the primary benefit of preventing accidental release of the whipstock, the provision of an anchor packer in combination with a latch sub also assists in preventing the loss of wellbore fluid from the lateral borehole into the primary borehole during the drilling procedure. The aforementioned combination further assists in preventing contamination of the primary borehole oil reservoir with solids drilled from the lateral borehole. In this regard, it will be understood that the anchor packer acts as a barrier to wellbore fluid and solid contamination passing from the lateral

borehole into the primary borehole. Applicant respectfully asserts that these further exemplary advantages are neither contemplated, nor taught or suggested by *Murray* or *Sieber*.

Accordingly, for at least the reasons discussed above, Applicant respectfully asserts that *Murray* and *Sieber*, whether viewed singly or in combination, do not teach or suggest a downhole system for locating and fixing equipment at required depth and orientation within a wellbore, including at least, "an anchor packer secured to said latch sub for releasably fixing the depth and orientation of said latch sub relative to a well bore," as recited in independent claim 1, as amended.

As pointed out in M.P.E.P. § 2143.03, "[t]o establish prima facie obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art". *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). Since this criterion has not been met, Applicant respectfully asserts that the rejection under 35 U.S.C. § 103 (a) should be withdrawn because *Murray* and *Sieber* does not teach or suggest each feature of independent claim 1, as amended.

In view of the above arguments, Applicant respectfully requests the rejection of independent claim 1 under 35 U.S.C. § 103 be withdrawn. Additionally, claims 2 and 3, which depend from independent claim 1, are allowable at least because their base claim is allowable, as well as for the additional features recited therein.

#### Independent claim 4

With regard to independent claim 4, Applicant respectfully asserts that *Murray* and *Sieber*, viewed either singly or in combination, do not teach or suggest a method of positioning downhole equipment within a well bore, the method including the steps of "providing a latch profile in the wall of the well bore or well bore casing; determining the position and orientation of said latch profile; making up a string comprising an anchor packer and equipment to be positioned within the well bore, said equipment being fixed relative to a latch member for locating in said latch profile and said equipment being positioned and orientated relative to the latch member in view of said determination so as to ensure a desired position and orientation of said equipment is achieved in the well bore when the latch member is located in said latch profile; running the string downhole; locating the latch member in said latch profile; sliding the

latch member along an edge of said latch profile until a portion of said latch profile stops said sliding movement; and setting said anchor packer," as recited in independent claim 4.

Applicant respectfully asserts that independent claim 4 is allowable for at least the reasons presented above for the allowance of independent claim 1, and the additional features recited therein. In the interest of avoiding redundant arguments, the reasons for the allowance of independent claim 4 are not repeated herein.

### **CONCLUSION**

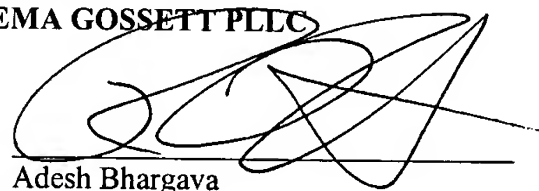
In view of the foregoing, Applicant respectfully requests reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicant's undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 04-2223. If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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